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COMMITTEE OF EXPERTS ON THE
TRANSPORT OF DANGEROUS GOODS

Sub-Committee of Experts on the
Transport of Dangerous Goods
(Fourteenth session,
Geneva, 8-18 December 1997,
agenda item 2 (c))

DRAFT AMENDMENTS TO THE MODEL REGULATIONS ON THE TRANSPORT OF DANGEROUS GOODS

Other packaging and IBC matters

Inclusion of Test Temperature in the Packaging Designation Code

Transmitted by the Observer from New Zealand

Introduction

Plastic drums, jerricans, plastic boxes, other than polystyrene boxes, and plastic, composite packagings (plastic material), combination packages with plastic inner packaging, other than plastic bag intended to contain solids or articles, (6.1.5.3.2 10th ed) and rigid plastics and composite IBC's (6.5.4.9.2) are required to be cooled to at least minus 18 degrees Celsius before undergoing the Drop Test.

At the thirteenth session, Experts from Finland, Canada and Norway indicated that winter temperatures in their countries were often colder than this reference temperature (-18 °C). In many other countries temperatures never fall this low.

The UN packaging standards were developed to assist with international trade and it was therefor reasonable to adopt reference temperatures which were relatively representative of the temperature ranges likely to be encountered in international transport. i.e. 55 °C and minus 18 °C.

A growing number of Countries are now basing their internal land transport legislation on the UN Recommendations. This trend will increase with the Recommendations now becoming Model Regulations. In the majority of instances packaging used in land transport remains with that country. Under these circumstances the packaging should be tested to comply with the temperature ranges likely to be encountered.

It is unreasonable and imposes significant additional cost to require packaging used solely in a tropical country to be drop tested at minus 18 degrees when the ambient temperature never falls below 20 °C. For countries near the Arctic or Antarctic winter temperatures fall considerably below minus 18 °C.

Thus minus 18 °C is therfor not an addequate test temperature.

Proposal

It is proposed that the test temperature criteria in the Recommendations be amended to require testing over the temperature range likely to be encountered in transport. The default test temperature should remain at minus 18 degrees Celsius for the drop test for plastic drums, jerricans, plastic boxes, other than polystyrene boxes, and plastic, composite packagings (plastic material), combination packages with plastic inner packaging, other than plastic bag intended to contain solids or articles,(6.1.5.3.2 10th ed.) and rigid plastics and composite IBC's (6.5.4.9.2). If this test temperature is not appropriate, then testing at an alternative temperature approved by the Competent Authority should be permitted.

This can b e achieved by amending paragraphs:

6.1.5.3.2 to read "The temperature of the test sample and its contents shall be reduced to -18 °C. An alternative test temperature may be used with the permission of the Competent Authority. If an alternative test temperature is used this must be included in the UN Packaging Designatory Code as required by 6.1.3.1 (c)...."

and

6.5.4.9.2 (c) by modifying the current sentience re test temperature to. "...Testing of IBCs shall be carried out when the temperature of the test sample and its contents has been reduced to minus 18 °C. An alternative test temperature may be used with the permission of the Competent Authority. If an alternative test temperature is used this must be included in the UN Packaging Designatory Code as required by 6.5.2.1.1 (c)...."

Under these circumstances it is necessary to indicate in the plastic package the test temperature at which the drop test was carried out. This requires the addition of a test temperature identifier to be added to the UN Packaging Designatory Code.

This can be achieved by adding a new paragraph after 6.1.3.1 (c) to read;

"The test temperature for plastic packagings at which the drop test was conducted, in degrees Kelvin, expressed as xxxK. Where the drop test is conducted at the default test temperature of minus 18 degrees Celsius, this additional marking may be omitted.

A corresponding amendment should be made to 6.5.2.1.1

Justification

Test plastic packaging to the lowest temperature likely to be encountered in normal transport use will enhance safety and reduce the possibility of cold induced brittle failure. Allowing alternative test temperature will reduce the cost of testing and production for countries where -18 °C is not reached. This reduction in cost will not reduce safety. The test temperature designator in the Packaging Designator Code will clearly indicate the suitability of this packaging for its intended use.

The person filling the packaging is already responsible for ensuring that the package, is suitable for a particular use. Checking that the test temperature is appropriate for the intended journey would be another duty for the filler to perform. To check that the package is suitable the person filling the package must already check that the material the package is constructed from is compatible with the intended contents, that the package had been test to the correct standard i.e. check the packaging group of the substance to be filled with the Packaging Designating Code. Ensure that volatile liquids are suitable for filling into a package by checking the vapour pressure of the liquid and then checking the Packaging Designating Code.

Adoption of a Test Temperature Designation and inclusion of this in the Packaging Designator Code on packaging will enhance safety, and in many cases reduce the cost of packaging. Any factors which will promote wider use of UN specification packaging should be given serious consideration.

Recommendation

That the committee adopt the proposal for a Test Temperature Designator for Plastic Packaging and IBCs and alternative test temperatures.